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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,301	07/30/2003	Ross H. Hill	060937-0143	9133

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EXAMINER	
COLEMAN, WILLIAM D	

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 02/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/630,301	HILL ET AL.	
	Examiner	Art Unit	
	W. David Coleman	2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-42* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-16 and 18-42* is/are rejected.

7)☒ Claim(s) *11 and 17* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

2. Applicant's arguments, see response under 37 C.F.R. § 1.116, filed January 17, 2006, with respect to the rejection(s) of claim(s) 1-42 under 35 U.S.C. 102(b) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Cernigliaro et al., U.S. Patent Application Publication No.: US 2003/0073042 A1.

Claim Rejections - 35 USC § 102

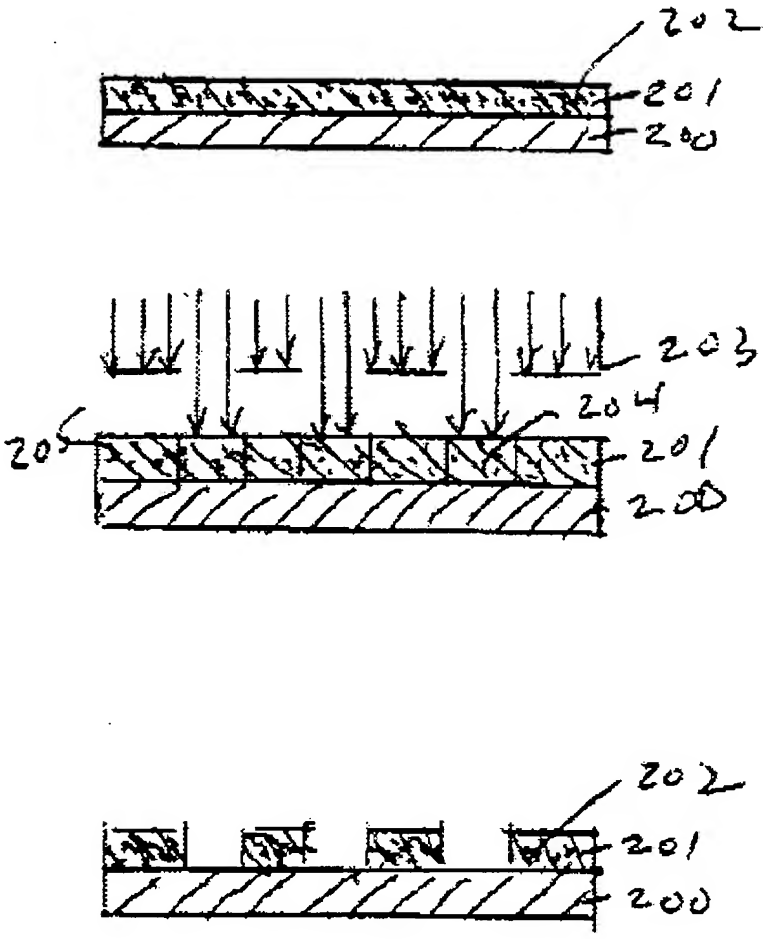
3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 2, 3, 5, 6, 7, 8, 12, 13, 14, 15, 18, 19, 20, 21, 22, 23, 24, 26, 27, 28, 29, 30, 32, 33, 34, 35, 37, 38 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by Cernigliaro.

5. Cernigliaro discloses a semiconductor process as claimed. Please see **FIGS. 1(a)-2(c)**, where Cernigliaro teaches the following limitations.



6. Pertaining to claim 1, Cernigliaro teaches a method for forming a pattern on a substrate, comprising:

applying a precursor **201** comprising at least one metal (it is well known that indium and tin are metals, see [0081]) to a substrate **200** to form a precursor layer;

exposing a predetermined portion of the precursor layer; and

developing the predetermined portion of the precursor layer, thereby at least substantially removing the predetermined portion **204** from the substrate and forming a pattern on the substrate comprising a remaining portion of the precursor **205**.

7. Pertaining to claim 2, Cernigliaro teaches the method of claim 1, wherein the precursor comprises a molecular precursor (HPMA).

8. Pertaining to claim 3, Cernigliaro teaches the method of claim 1, wherein the precursor comprises particles in contact with at least one ligand (dispersion solution A).

9. Pertaining to claim 5, Cernigliaro teaches the method of claim 3, wherein the particles comprises microparticles (please note that nanoparticles are nothing more than very small microparticles).

10. Pertaining to claim 6, Cernigliaro teaches the method of claim 3, wherein the particles comprises nanoparticles.

11. Pertaining to claim 7, Cernigliaro teaches the method of claim 3, wherein the particles comprise ceramics (please note the metal oxides are considered ceramics).

12. Pertaining to claim 8, Cernigliaro teaches the method of claim 3, wherein the particles comprise alloys (please note that ITO is also an alloy as well as oxides)

13. Pertaining to claim 12, Cernigliaro teaches the method of claim 1, wherein said exposing comprises photochemcially reacting, photothermally reacting and combinations thereof (see paragraph [0056]).

14. Pertaining to claim 13, Cernigliaro teaches the method of claim 1, wherein said exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation (see paragraph [0058]).

15. Pertaining to claim 14, Cernigliaro teaches the method of claim 1, wherein the electromagnetic radiation comprises ultraviolet radiation (see the explanation above in the rejection of claim 13).

16. Pertaining to claim 15, Cernigliaro teaches the method of claim 1, wherein said developing comprises contacting the first predetermined portion with a polar solvent (TFE).

17. Pertaining to claim 18, Cernigliaro teaches the method of claim 1, further comprising pre-exposing the precursor layer to energy before said exposing (IR bake step [0090]).

18. Pertaining to claim 19, Cernigliaro teaches the method of claim 18, wherein said pre-exposing comprises photochemically reacting, photothermally reacting and combinations thereof.

19. Pertaining to claim 20, Cernigliaro teaches the method of claim 18, wherein the pre-exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation. (it is well known that infrared light is electromagnetic radiation).

20. Pertaining to claim 21, Cernigliaro teaches the method of claim 18, wherein the electromagnetic radiation comprises ultraviolet radiation (see paragraph [0058]).

21. Pertaining to claim 22, Cernigliaro teaches the method of claim 18, wherein the pre-exposing further comprises selecting a predetermined fraction of a minimum energy necessary for developing the predetermined portion of the precursor.

22. Pertaining to claim 23, Cernigliaro teaches the method of claim 18, further comprising post-exposing the precursor to energy after said exposing step.

23. Pertaining to claim 24, Cernigliaro teaches the method of claim 1, further comprising post-exposing the precursor to energy after said exposing step (the Examiner takes the position that the post exposure bake using an IR bake meets this limitation see paragraph [0090]).

24. Pertaining to claim 25, Cernigliaro teaches the method of claim 23 or 24, wherein said post-exposing comprises photochemically reacting, photothermally reacting and combinations thereof (see the rejection of claim 24 above the explanations to the present limitations).

25. Pertaining to claim 26, Cernigliaro teaches the method of claim 23 or 24, wherein the post-exposing comprises radiating the predetermined portion of the precursor layer with electromagnetic radiation.

26. Pertaining to claim 27, Cernigliaro teaches the method of claims 23 or 24, wherein the electromagnetic radiation comprises ultraviolet radiation.

27. Pertaining to claim 28, Cernigliaro teaches an electronic component formed by a process comprising:

applying a precursor comprising at least one metal to a substrate to form a precursor layer;

exposing a predetermined portion of the precursor layer; and

developing the predetermined portion of the precursor layer, thereby at least substantially removing the predetermined portion from the substrate and forming a pattern on the substrate comprising a remaining portion of the precursor.

28. Pertaining to claim 29, Cernigliaro teaches the electronic component of claim 28, wherein the precursor comprises a molecular precursor.

29. Pertaining to claim 30, Cernigliaro teaches the electronic component of claim 28, wherein the precursor comprises particles in contact with at least one ligand.

30. Pertaining to claim 32, Cernigliaro teaches the electronic component of claim 30, wherein the particles comprise microparticles.

31. Pertaining to claim 33, Cernigliaro teaches the electronic component of claim 30, wherein the particles comprise nanoparticles.

32. Pertaining to claim 34, Cernigliaro teaches the electronic component of claim 30 wherein the particles comprise ceramics.

33. Pertaining to claim 35, Cernigliaro teaches the electronic component of claim 30, wherein said particles comprise alloys (please note that metal oxides can be considered alloys).

34. Pertaining to claim 37, Cernigliaro teaches the electronic component of claim 28, wherein the process further comprises pre-exposing the precursor to energy before said exposing step (i.e., IR bake).

35. Pertaining to claim 38, Cernigliaro teaches the electronic component of claim 28, wherein the process further comprises post-exposing the precursor to energy after said exposing step.

36. Pertaining to claim 39, Cernigliaro teaches the electronic component of claim 37, wherein the process further comprises post-exposing the precursor to energy after said exposing step (see[0059]).

37. Claims 40, 41 and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida et al., U.S. Patent 5,849,465.

38. Pertaining to claim 40, Uchida teaches a precursor comprising:

a metal-containing material comprising $Ti(Pr^iO)_2(EAA)_2$ or any isomer thereof; and a casting solvent (see column 14, Table 4).

39. Pertaining to claim 41, Uchida teaches a film of material comprising $Ti(Pr^iO)_2(EAA)_2$ or any isomer thereof.

Pertaining to claim 42, Uchida teaches an electronic component comprising a substrate; and

a metal-containing material comprising $Ti(Pr^iO)_2(EAA)_2$ or an isomer thereof applied to said substrate.

Claim Rejections - 35 USC § 103

40. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

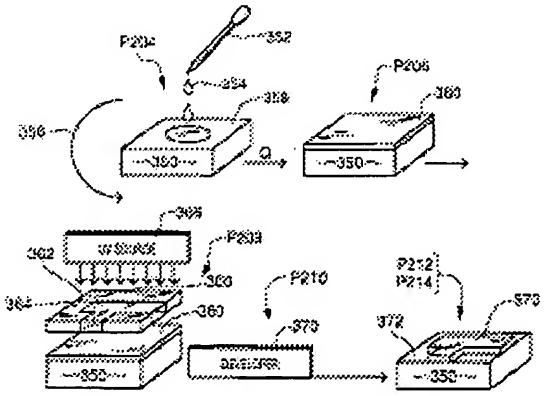
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

41. Claims 3, 4, 9, 10, 16, 31 and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Cernigliaro et al., U.S. Patent Application Publication No.: US 2003/00733042 A1 in view of Uchida et al., U.S. Patent 5,849,465.

42. Cernigliaro discloses a semiconductor process substantially as claimed. However Cernigliaro fails to teach the following limitations.

43. Pertaining to claim 3, Cernigliaro does not specifically state at lease one ligand. Uchida teaches a ligand. In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate the ligand of Uchida into the Cernigliaro semiconductor process because the mask forms either a positive or negative image of the desired pattern (column 2, lines 7-8).



44. Pertaining to claim 4, Cernigliaro fails to disclose the method of claim 3, wherein the particles comprise sol particles. Uchida teaches particles the comprise sol particles (column 2, line 51). In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate sol particles into the Cernigliaro semiconductor process because the mask forms either positive or negative image of the desired pattern (column 2, lines 7-8).

45. Pertaining to claim 9, Cernigliaro fails to disclose the method of claim 4, further comprising transforming the precursor into a gel. Uchida teaches transforming the precursor into a gel (see column 2, lines 51). In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate the process of Uchida into the Cernigliaro semiconductor process because the mask forms either a positive or negative image of the desired pattern (column 2, lines 7-8).

46. Pertaining to claim 10, Cernigliaro fails to teach the method of claim 1, wherein the precursor comprises $Ti(Pr^iO)_2(EAA)_2$. Uchida teaches a precursor that comprises $Ti(Pr^iO)_2(EAA)_2$. In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate the process of Uchida into the Cernigliaro semiconductor process because the mask forms either a positive or negative image of the desired pattern (column 2, lines 7-8).

47. Pertaining to claim 16, Cernigliaro fails to teach the method of claim 1, wherein said developing comprises contacting the first predetermined portion with a protic solvent. Uchida teaches a protic solvent (column 10, lines 3-27). In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate sol particles into the Cernigliaro semiconductor process because the mask forms either positive or negative image of the desired pattern (column 2, lines 7-8).

48. Pertaining to claim 31, Cernigliaro fails to teach the method of claim 30, wherein the particles comprise sol particles. Uchida teaches particles the comprise sol particles (column 2, line 51). In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate sol particles into the Cernigliaro semiconductor process because the mask forms either positive or negative image of the desired pattern (column 2, lines 7-8).

49. Pertaining to claim 36, Cernigliaro fails to teach the method of claim 31, further comprises transforming the precursor into a gel. Uchida teaches particles the comprise sol-gel particles (column 2, line 51). In view of Uchida, it would have been obvious to one of ordinary skill in the art to incorporate sol particles into the Cernigliaro semiconductor process because the mask forms either positive or negative image of the desired pattern (column 2, lines 7-8).

Objections

50. Claims 11, and 17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

51. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 571-272-1856. The examiner can normally be reached on Monday-Friday 9:00 AM - 5:30 PM.

52. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Smith can be reached on 571-272-1907. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

53. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

W. David Coleman
Primary Examiner
Art Unit 2823

WDC